



**CHEBROLU ENGINEERING COLLEGE(HU)::CHEBROLU  
DEPARTMENT OF MECHANICAL ENGINEERING**

Program name	Program code	Name of the Course that include experiential learning through project work/field work/internship	Course code	Year of offering	Name of the student studied course on experiential learning through project work/field work/internship
MECH	B.Tech	3D Modeling Amd Stress Analysis Of Process Piping System In A Plant	MECH	2020-21	SK.HUSSAIN SHAREEF
MECH	B.Tech		MECH	2020-21	Y. KOTESWARA RAO
MECH	B.Tech		MECH	2020-21	K.NAGA VAMSI
MECH	B.Tech		MECH	2020-21	G. HARSHA VARDHAN
MECH	B.Tech		MECH	2020-21	Y.DHANUJAYA RAO
MECH	B.Tech	FABRICATION OF PROTOTYPE FOR THE GENERATION OF ELECTRICITY USING SPEED BREAKERS	MECH	2020-21	R. PRAKASH NAYAK
MECH	B.Tech		MECH	2020-21	SK.MAHAMMAD HUSSEN
MECH	B.Tech		MECH	2020-21	K. SRINIVAS
MECH	B.Tech		MECH	2020-21	P. RAMANJANEYALU
MECH	B.Tech		MECH	2020-21	G.VENKATESH
MECH	B.Tech	MULYI-NOZZLE MANUALLY OPERATED SPRAYER	MECH	2020-21	SHAIK FAIROZ
MECH	B.Tech		MECH	2020-21	K. JOHN WESLY
MECH	B.Tech		MECH	2020-21	K. SRINIVAS VARMA
MECH	B.Tech		MECH	2020-21	M. NAGA SURYA SIHMA
MECH	B.Tech		MECH	2020-21	RAMA KRISHNA
MECH	B.Tech	WORK STUDY& ANALYSIS OF AUTOMATIC BREAK FAILURE INDICATOR MECHANISM	MECH	2020-21	P. AYAAZ KHAN
MECH	B.Tech		MECH	2020-21	V. VENKATA SAI KUMAR
MECH	B.Tech		MECH	2020-21	G. YASU
MECH	B.Tech		MECH	2020-21	K. PRASANTH
MECH	B.Tech		MECH	2020-21	S. AJAY KUMAR
MECH	B.Tech	DESIGN AND ANASLYSIS OF A SINGLE PLATE CLUTCH	MECH	2020-21	SK.THIRUPATHI RAO
MECH	B.Tech		MECH	2020-21	SK. IMAMISA
MECH	B.Tech		MECH	2020-21	SD. SANDANI
MECH	B.Tech		MECH	2020-21	SK. KHAJA VALI
MECH	B.Tech		MECH	2020-21	T. SRINIVAS

MECH	B.Tech	DESIGN AND VIBRATORY ANALYSIS OF HIGH PRESSURE STEAM TURBINE BLADE	MECH	2020-21	N. MANI KANTA
MECH	B.Tech		MECH	2020-21	S. VENKATA BALA
MECH	B.Tech		MECH	2020-21	R. SRI LAKSHMAIAH
MECH	B.Tech		MECH	2020-21	S. TEJA
MECH	B.Tech		MECH	2020-21	G. PRIYATHAM

A

Project report on

"3D MODELING AND STRESS ANALYSIS OF PROCESS PIPING SYSTEMS IN  
A PLANT"

Submitted in partial fulfillment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY  
IN

MECHANICAL ENGINEERING

Submitted by

SR.HUSSAIN SHAREEF

18H1U5A0311

Y.KOTESWARA RAO

18H1U5A0316

K.NAGA VAMSI

18H1U5A0304

G.HARSHA VARDHAN

17H1U1A0303

Y.DHANUNJAYA RAO

17H1U1A0317

Under the esteemed guidance of

Mr.R.V KIRAN M-Tech.



CHEBROLU ENGINEERING COLLEGE

DEPARTMENT OF MECHANICAL ENGINEERING

(Approved by AICTE, NEW DELHI & affiliated TO JNTU, Kakinada, A.P  
CHEBROLU, GUNTUR-522212

2017-2021

## ABSTRACT

This project presents the procedure and the problems associated with the process piping adopted by computer program in analyzing the effects and in preparing the data sheets. The engineering decision-making on pipe stress analysis through the application of CAESAR II. It is a part of the modeling and analysis of process pipe networks, serves to identify whether a given pipe arrangement can cope with weight, thermal, and pressure stress at safe operation levels.

An Iterative process of Design and Analysis cycle is done routinely by engineers while analyzing the existing networks or while designing the process pipe networks. The CAESAR II establishes a bi-directional communication with the current engineering software for pipe line designing and stress analysis.

The "3D Modelling and Stress Analysis of Process Piping Systems in a Plant" is analyzed using CAESAR II, for the better functional assistance for the plant. The problem of un-supported piping with loads on the process pipe line has been creating different types of stresses within the Isometric carries the deflections at Bends, Valve operating, due to the high temperatures and pressures upon passage of materials in the Industries which leads to the failure of piping systems and pipe supports.

To overcome these problems in the plant, stress analysis team verifies the nozzle loads and support loads by Iterative method to ensure the reliability of the expander inlet line. The analysis using CAESAR II on piping with load had done and verified in Operational, Hydro-Test, Expansion, and Sustain categories for the better Efficiency Gain throughout the Plant Operational Process.

A

Project report on

**FABRICATION OF PROTOTYPE FOR THE GENERATION OF  
ELECTRICITY USING SPEED BREAKERS**

Submitted in partial fulfillment of the requirement for the award of the degree of  
**BACHELOR OF TECHNOLOGY**

**IN**

**MECHANICAL ENGINEERING**

Submitted by

R.PRAKASH NAYAK

18HU5A0307

SK.MAHAMMAD HUSSEN

18HU5A0312

P.RAMAJANEYULU

17HU1A0310

K.SRINIVASU

18HU5A0302

G.VENKATESH

17HU1A0302

Under the esteemed guidance of

CILDHANU JAINI, M.Tech



**CHEBROLU ENGINEERING COLLEGE**

**DEPARTMENT OF MECHANICAL ENGINEERING**

(Approved by AICTE, NEW DELHI & affiliated to JNTU, Kakinada, A.P  
**CHEBROLU, GUNTUR-522212**

**2017-2021**

## ABSTRACT

Industrialized modern world consumes vast amount of energy mostly in the form of electrical energy. Therefore, to meet future energy demand, it is must to implement some idea for optimal utilization of conventional sources through conservation of energy. Due to the increasing rate of vehicle number day by day, this will help us to generate electricity. These automobiles go over a number of speed breakers present on the road. The vehicle is having a variety of weight like trucks, buses, cars, and two wheelers therefore whenever they are passing over a speed breaker a lot of energy is wasted. As these vehicles pass through the speed breakers, the vertical motion of the top of the speed breaker is converted into the rotational motion, which in turn is used generates electricity.

The reciprocating motion of the speed-breaker is converted into rotary motion using the rack and pinion arrangement. The axis of the pinion is coupled with the sprocket arrangement. The sprocket arrangement is made of two sprockets, one of larger size and the other of smaller size. Both sprockets are connected by means of a chain which serves in the transmission of power from the larger sprocket to the smaller sprocket. As the power is transmitted from the larger sprocket to the smaller sprocket, the speed that is available at the larger sprocket is relatively multiplied at the rotation of the smaller sprocket and generated electricity will be stored in a rechargeable battery. This electricity can be used later for lighting bulb during night time on the road side.

In the present project, we are designing a prototype from which the amount of Electrical Power produced by the rotation of shaft is calculated.

A PROJECT REPORT ON

# "MULTI-NOZZLE MANUALLY OPERATED SPRAYER"

(Approved BY JNTU-K)



DEPARTMENT OF MECHANICAL ENGINEERING

CHEBROLU ENGINEERING COLLEGE

Submitted In partial fulfilment of the requirements for the award of the Degree of

**Bachelor of Engineering in Mechanical Engineering**

By

SHAIK FAIROZ

KURAPATI JOHN WESLY

KATTA SRINIVASA VARMA

MACHERLA NAGA SURYA SIMHA

RAMA KRISHNA

18HU5A0310

18HU5A0305

18HU5A0303

17HU1A0308

16HU1A0315

Under the Guidance of

**Mr.K.NARESH BABU (M.Tech)**

Assistant Professor

DEPARTMENT OF MECHANICAL ENGINEERING

CHEBROLU ENGINEERING COLLEGE

(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada, A.P

Accredited by NAAC)

Chebrolu - 522212

2017-2021

## ABSTRACT

The design and Fabrication Of Multi-nozzle manually operated pesticide sprayer. Multi-nozzle sprayer consists of back pack sprayer which is mounted on the tank base of the trolley. The piston rod of the tank is connected to the crank, which is mounted on the smaller gear, which in turn is meshed with a larger gear; the larger gear is mounted on the trolley. The pump is connected to the pressure tank ,which pressurizes the fluid during operation and stores it in the pressure tank. Using a flexible hose, the pressurized pesticide is transferred to the multiple nozzles. According to the need the valve is operated so as to obtain a fine spray throughout. By using manually operated pesticide sprayer, the strain, which is caused to the farmers in conventional backpack sprayer, is reduced and larger area can be covered in a short time.

*Keywords: Multi-Nozzle, Backpack Sprayer, Pesticide.*

A

Project report on

**WORK STUDY & ANALYSIS OF AUTOMATIC BRAKE FAILURE INDICATOR  
MECHANISM**

Submitted in partial fulfilment of the requirement for the award of the degree of  
**BACHELOR OF TECHNOLOGY**

IN

**MECHANICAL ENGINEERING**

Submitted by

P.AYAAZ KHAN

18HU5A0306

V.VENKATA SAI KUMAR

18HU5A0315

G.YESU

18HU5A0301

K.PRASANTH

17HU1A0306

S.AJAY KUMAR

18HU5A0314

Under the esteemed guidance of

A. SIVA NAGA RAJU, M-Tech, (Ph.D)



**CHEBROLU ENGINEERING COLLEGE**

**DEPARTMENT OF MECHANICAL ENGINEERING**

(Approved by AICTE, NEW DELHI & affiliated TO JNTU, Kakinada, A.P  
**CHEBROLU, GUNTUR-522212**

**2017-2021**

## ABSTRACT

Frequently accidents are caused by brake failure. Brake failure occurs because of worn out brake shoes and cut in liner. In this work automatic brake failure indicator has been analyzed for manufacturing process. A control unit is used to check brake condition.

Automatic brake failure indicator and braking system helps to reduce the accidents. The aim of this work is to study and analyze the working condition of automatic braking system with indicator and refer to the manufacturing companies for fabrication. It consists of sensor which is connected to braking system. When the brake fails the sensor senses the signal and sends to the microcontroller. The microcontroller analyzes the signal and operates the corresponding indicator.

In this system the components used are two-way relay, buzzer, battery and motor. And finally, the braking system installed in the vehicle by using these components the most effective system is to be generate. In this system, if brake fails then the buzzer gives the indication to the driver in the form of sound and as the result of this, the speed of the vehicle gets reduced and vehicle is stopped in few seconds. The main advantage of this system is compact in size, and installation cost is very less.

A

Project report on

## Design and Analysis of a Single plate Clutch

Submitted in partial fulfillment of the requirement for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

Submitted by

SK,THIRUPATHI RAO

18HU5A0313

SK,IMAMSA

17HU1A0313

SD,SANDANI

18HU5A0309

SK,KHAJAVALI

17HU1A0312

T.SRINIVAS

17HU1A0315

Under the esteemed guidance of

LBHANULATHA, M.Tech, (Ph.D)



CHEBROLU ENGINEERING COLLEGE

DEPARTMENT OF MECHANICAL ENGINEERING

(Approved by AICTE, NEW DELHI & affiliated to JNTU, Kakinada, A.P

CHEBROLU, GUNTUR-522212

2017-2021

## ABSTRACT

A Clutch is a machine member used to connect the driving shaft to a driven shaft, so that the driven shaft may be started or stopped at will, without stopping the driving shaft. A clutch thus provides an interruptible connection between two rotating shafts. The present used material for single plate clutch is Cast Iron and aluminum alloys. In this thesis analysis is performed using composite materials. The composite materials are considered due to their high strength to weight ratio. A single plate clutch is designed and modeled using NX8.0 software. Static analysis and Dynamic analysis is done on the clutch to determine stresses and deformation. Analysis is done in Ansys. Theoretical calculations are also done to determine stresses.

**Keywords:** Clutch, Structural Analysis, ANSYS and NX 8.0.

A

Project report on

# **"DESIGN AND VIBRATORY ANALYSIS OF HIGH PRESSURE STEAM TURBINE BLADE"**

Submitted in partial fulfilment of the requirement for the award of the degree of  
**BACHELOR OF TECHNOLOGY**

**IN**

**MECHANICAL ENGINEERING**

**Submitted by**

N.MANI KANTA	17HU1A0309
S.VENKATA BALA GANGADHARA TILAK	18HU5A0308
R.SRI LAKSHMATAH	17HU1A0311
S.TEJA	17HU1A0314
G.PRIYATHAM	17HU1A0304

**Under the esteemed guidance of**

**Mr.M.MURALI KRISHNA M-Tech**



**CHEBROLU ENGINEERING COLLEGE**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**(Approved by AICTE, NEW DELHI &affiliated TO JNTU, Kakinada, A.P  
CHEBROLU, GUNTUR-522212**

**2017-2021**

## ABSTRACT

This Project addresses the issue of steam turbine efficiency by discussing the overall design of high pressure steam turbine blades. A specific focus on blade profile, materials used in the production of steam turbine blades, and the factors that cause turbine blade failure and therefore the failure of the turbine itself. This project enumerates and describes the currently available technologies that enhance the overall efficiency of the generator and prevent turbine failure due to blade erosion and blade cracking. In particular, this project evaluates the effectiveness of certain titanium alloys and steels in resisting creep and fracture in turbine blades. The effectiveness of chemical and thermal coatings in protecting the blade substrate from corrosion when exposed to wet steam will also be addressed.

The stresses developed in the blade as a result of steam pressure, steam temperature, and the centrifugal forces due to rotational movement are delineated, current designs calculated to counter the fatigue caused by these stresses are presented. The aerodynamic designs of both impulse and reaction turbine blades are compared and contrasted and the effect that these designs have on turbine efficiency are discussed.

The efficiency of the steam turbine is a key factor in both the economics and environmental impact of any coal-fired power station. For example, increasing the efficiency of a typical 600MW turbine by 1% reduces emissions of CO<sub>2</sub> from the station by approximately 50,000 tons per year, with corresponding reductions in SOX and NOX. Typically, efficiency upgrades are economically evaluated at about 700 per Kilowatt, so the 1% increase of a 600MW machine is worth about 4.2 million. Hence steam turbine blade performance is frequently the single most important criterion for retrofit coal fired power plant.

Based on the research presented here in this project presents a detailed summary of what modifications to existing high pressure steam turbine blades can be made to increase turbine efficiency.